REMARKS

Applicant respectfully requests reconsideration and allowance in view of the foregoing amendments and the following remarks. In the Office Action, the Examiner rejected claims 1-64. By this amendment, Applicant has canceled claim 9 and has amended claims 7, 18 and 45 to correct minor typographical errors. Following entry of these amendments, claims 1-8 and 10-64 will be pending in the application of which claims 1, 13, 46 and 61 are independent claims.

Claim Rejections under 35 U.S.C. §102(e)

In the Office Action, the Examiner rejected claims 1-14, 17-32, 40 and 46-61 under 35 U.S.C. §102(e) as allegedly anticipated by U.S. Patent No. 5,784,476 to Bird (hereinafter "Bird"). Applicant cancels claim 9 and respectfully traverses the rejections of claims 1-8, 10-14, 17-32, 40 and 46-61.

An anticipation rejection is proper when a patent applicant has claimed an invention that "was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent...." 35 U.S.C. §102(e). A claim is anticipated under 35 U.S.C. §102(e) "only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1570 (Fed. Cir. 1988) (emphasis in original), cert. denied, 488 U.S. 892 (1988). "To establish inherency, the extrinsic evidence, 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.'" In re Robertson, 169 F.3d 743, 745 (Fed. Cir. 1999) (citations omitted). Upon reliance on a theory of inherency, "the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original).

For at least the reasons stated below, Applicant asserts that Bird fails to expressly or inherently describe each and every element of the invention claimed by Applicant and, therefore,

that Applicant's rejected claims 1-8, 10-14, 17-32, 40 and 46-61 are patentably distinct from Bird.

Claims 1, 5-6, 12-14, 24-25 and 61

Applicant respectfully disagrees with the Examiner's suggestion that the Bird reference discloses a power estimation signal. The cited passage in Bird discusses an automatic gain control for digitized signals wherein a digital audio signal is "connected to a delay circuit 54 and also to the input of an amplitude analyzer 52" (col. 4, lines 36-41). The examiner specifically and incorrectly compares a digital audio input signal with a power estimation signal.

A digital audio input signal, such as used in Bird, is understood in the art to be a quantized sign (positive or negative) and magnitude version of an analog time varying signal of positive and negative amplitude in the 20 Hz to 20 KHz frequency range. In contrast, a power estimation signal as required by the claims of the present invention may be derived from analog or digital signals from many sources, for example, audio, video, radio frequency, and sensors. A power estimation signal typically represents the peak, average, or root mean squared value of the magnitude of the input (the envelope) and is a positive only value. Therefore, the comparison is incorrectly made and Bird cannot be said to disclose a power estimation signal.

Next, the Examiner suggests that Bird discloses a variable attack and release stage for detecting changes in amplitude. However, a review of the cited passage in the Bird reference reveals an amplitude analyzer arranged to detect whether an input signal is above, below or between a certain pair of threshold values. Simply stated, the Bird amplitude analyzer performs an *absolute* measurement of amplitude levels by comparing the amplitude level to certain predetermined thresholds.

In contrast, the presently claimed detection of changes in amplitude involves *relative* measurements. A change in amplitude produces a positive or negative value relative to the last output value or relative to another input. Because Bird measures an entirely different quantity than the "variable attack and release stages" and produces a different output (absolute measurement), it is apparent that Bird does not disclose a "variable attack and release stage for detecting changes in amplitude of the power estimation signal."

The Examiner next equates "comparing the changes in amplitude [of the power estimation signal] relative to time to a first criteria" with Bird's determination based on comparing a level to a too-quiet threshold and a too-loud threshold to obtain an absolute measurement of the amplitude of a signal. As shown previously, Bird's measurement and comparison of amplitude levels is not equivalent to the comparison of *changes* in amplitude as claimed in the present application. Therefore, Bird does not disclose comparing the changes in amplitude relative to time to a first criteria.

The Examiner also cites Bird as disclosing a first or second algorithm (claims 1 and 14). Applicant respectfully disagrees that Bird discloses more than one algorithm. At best, Bird provides a fixed algorithm that applies one of three multiplier values based on an absolute measurement of a signal amplitude. Further, Bird neither discloses nor anticipates modification of the algorithm (*See* claim 14).

In contrast, the present invention provides for the application of two algorithms selected according to criteria applied to changes in amplitude of a power estimation signal. Also, while the present invention is directed to controlling a tracking filter, Bird merely produces a multiplying factor for a volume control. Because Bird does not contemplate the quantity, nature, changeability and application of the algorithms in the present invention, Bird cannot be said to disclose application of a first or second algorithm or a modifiable algorithm.

In summary, for at least the reasons presented above, Bird does not disclose or suggest each and every element as set forth in claims 1, 5-6, 12-14, 24-25 and 61, either expressly or inherently described. Accordingly, Applicant respectfully submits that currently presented claims 1, 5-6, 12-14, 24-25 and 61 are allowable over the art of record.

Claims 2-3, 7 and 10

The Examiner proposes that Bird discloses a first algorithm including a factor representing the amount of compression in the system. Applicant notes that the Examiner has included claim 3 in the rejection based on compression, even though claim 3 refers to expansion rather than compression in the system. Expansion is addressed nowhere in Bird and Applicant respectfully suggests that the absence of this element is sufficient to show that at least claims 3, 7

and 10 are allowable. Nevertheless, Applicant addresses claims 2-3, 7 and 10 with respect to compression.

Bird provides little discussion of compression. While Bird states that "the degree of *compression* could be dependent on the setting of the volume control" (col. 8, lines 12-13), it also states that "[o]ne solution to the problem is to apply *straight forward compression* to the signal..."(col. 1, line 38), that an "approach such as *compression* compromises the music", and that "the invention allows the transients to pass through..." (col.8, lines 27-31). As will be appreciated by one skilled in the art, these statements clearly indicate that Bird does not use compression in the sense of the present invention, but instead uses dynamic range shifting.

Of significance in the context of the rejection of claims 2-3, 7 and 10 is that the cited passage in Bird clearly states that "the degree of compression is dependent on the volume setting" (col. 8, lines 12-18). Thus the Bird reference discusses changes in alleged compression *resulting* from changes to the volume control and does not relate to an algorithm *receiving a factor* representing the amount of compression or expansion in the system (*See* claims 2-3, 7 and 10 of the present application). Therefore, claims 2-3, 7 and 10 should be allowed.

In summary, for at least the reasons presented above, Bird does not disclose or suggest each and every element as set forth in claims 2-3, 7 and 10, either expressly or inherently described. Accordingly, Applicant respectfully submits that currently presented claims 2-3, 7 and 10 are allowable over the art of record.

Claims 4, 8 and 11

In rejecting claims 4, 8 and 11, the Examiner offers that the act of using a control knob to set too loud and too soft threshold values is equivalent to an algorithm including a factor representing user preference. Applicant respectfully disagrees and directs Examiner's attention to TABLE A (Control Bus – User Interface Control Signals) on pages 28-30. It should be readily apparent that the factor representing user preferences of the present invention is not disclosed by Bird's providing for the use of a control knob. Therefore, Bird does not disclose or suggest each and every element as set forth in claims 4, 8 and 11, either expressly or inherently

described. Accordingly, Applicant respectfully submits that currently presented claims 4, 8 and 11 are allowable over the art of record.

Claims 17-19

In rejecting claims 17-19, the Examiner cites a passage of Bird that describes the function of an algorithm. In the referenced passage, the analyzer calculates, writes, resets, measures, increments and even "takes no further action." In contrast, Applicant notes that claims 17-19 are directed to the implementation of an algorithm: "algorithm is generated by...," algorithm comprises...," etc. Therefore, the cited passage does not set forth any elements of claims 17-19 and claims 17-19 should be allowed for at least these reasons. Accordingly, Applicant respectfully submits that currently presented claims 17-19 are allowable over the art of record.

Claims 20-23, 26-32

In rejecting claims 20-23 and 26-32, the Examiner cites a passage of Bird that discloses none of the elements of claims 20-23 and 26-32. Instead, the cited passage indicates the storage of data variables used for multiplication after a delay. The cited passage continues with a description of the function of an algorithm. Further, the Bird reference as a whole contains no mention of at least one element in each of the rejected claims 20-23 and 26-32 and these claims should be allowed on that basis alone. Nevertheless, in withdrawing the rejections, the Examiner may take into consideration the following major reasons that Bird is ineffective with regard to claims 20-23 and 26-32:

- At least two inputs are used in the present invention (*See* claim 20) whereas Bird uses a single input.
- The present invention compares the inputs (relative comparisons) whereas Bird compares a single input to one or more predetermined thresholds (absolute comparisons). This difference represents a functional and structural distinction between Bird and the present invention.
- The present invention selects an algorithm based on the difference in inputs, the deviation signal and logic states (attack, release, and a transition between the two); Bird does not

contemplate deviation signals and uses a single fixed algorithm. Therefore, the present invention significantly advances the state of the art.

- The present invention provides comparison and first stage outputs that comprise a plurality coefficients and one or more variables. Nowhere does Bird describe a plurality of coefficients or more than one variable; Bird merely provides a single output that is a multiplying factor.

Because the Bird reference fails to disclose each and every element set forth in claims 20-23 and 26-32, Applicant respectfully asserts that these claims are allowable over Bird.

Claims 40 and 46-60

In rejecting claims 40 and 46-60, the Examiner suggests that the low-pass filter 43 of Figure 2 in Bird discloses the tracking filter of the present invention. Applicant respectfully disagrees and directs the Examiner to page 88 et seq. in the specification of the present application for a description of the function of an exemplary tracking filter. It will be appreciated from this description that the disclosed tracking filter enables a variable response output based on a comparison of an input and feedback signal, the result of which may be composed of a variable, a logic signal, or both. In contrast, Bird uses a well-known, fixed response low-pass filter such that the response of the low-pass filter cannot be modified by a variable, a logic signal, or a combination of variable and signal. Bird's fixed response low-pass filter cannot provide the variable response disclosed in the present application. Because Bird neither discloses nor anticipates a tracking filter, Applicant respectfully asserts that claims 40 and 46-60 are allowable over Bird.

In summary, for at least the reasons stated above, and taking into consideration the standards for an anticipation rejection under 35 U.S.C. §102(e), Applicant asserts that Applicant's rejected claims 1-8, 10-14, 17-32, 40 and 46-61 are patentably distinct from Bird.

Claim Rejections under 35 U.S.C. §103(a)

In the Office Action, the Examiner rejected claims 15-16, 33-39 and 41-45 under 35 U.S.C. §103(a) as allegedly being unpatentable over Bird in view of U.S. Patent No. 6,678,382 to Peterson (hereinafter "Peterson"). Additionally, the Examiner rejected claims 62-64 under 35 U.S.C. §103(a) as allegedly being unpatentable over Bird in view of U.S. Patent No. 5,530,761 to d'Alayer de Costemore d'Arc (hereinafter "d'Alayer"). Applicant respectfully traverses the rejections of claims 15-16, 33-39, 41-45 and 62-64 and notes for subsequent reference the following standards for a proper §103(a) rejection.

A §103(a), or obviousness, rejection is proper only when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains." 35 U.S.C. §103(a). The Examiner must make out a *prima facie* case for obviousness. The mere fact that references can be combined or modified is not sufficient to establish *prima facie* obviousness. The *en banc* Federal Circuit has held that "structural similarity between claimed and prior art subject matter, proved by combining references or otherwise, where the prior art gives reason or motivation to make the claimed compositions, creates a prima facie case of obviousness." *In re Dillon*, 16 U.S.P.Q. 2d 1897, 1901 (CAFC 1990). The underlying inquiries into the validity of an obviousness rejection are: "(1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness." *In re Dembiczak*, 175 F.3d 994, 998, (Fed. Cir. 1999).

Further, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). Likewise, if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984).

Additionally, with hindsight, a claim of obviousness can be an easy one to make. Many inventions seem obvious with the clarity of 20-20 hindsight. However, a hindsight basis for obviousness is inappropriate and cannot sustain a *prima facie* case of obviousness. Applicant's respectfully assert that the Examiner is judging obviousness of Applicant's invention using hindsight, and as such, should reconsider the rejections from the proper perspective of the time of Applicant's invention, without the teachings of Applicant's disclosure.

Finally, Applicant respectfully reminds the Examiner of the following: the proposed modification cannot render the prior art unsatisfactory for its intended use; and the proposed modification cannot change the principle of operation of a reference.

For at least the reasons stated below, and taking into consideration the standards for obviousness presented above, Applicant asserts that one of ordinary skill in the art would not have considered Applicant's invention obvious at the time of invention and, therefore, that Applicant's rejected claims 15-16, 33-39, 41-45 and 62-64 are not obvious over the prior art of record. Applicant asserts that the combinations of Bird and Peterson and Bird and d'Alayer fail to describe or suggest the subject matter as a whole of Applicant's claimed invention and, therefore, that Applicant's rejected claims 15-16, 33-39 and 41-45 are patentably distinct from Bird in view of Peterson and claims 62-64 are patentably distinct from Bird in view of d'Alayer.

Dependent Claims 15 and16

The Examiner acknowledges that Bird is silent regarding an algorithm including a plurality of elements in a lookup table and modifying the algorithm by causing the selection of different entries in the lookup table. Applicant notes that amended claim 35 also includes a lookup table. The Examiner believes that a lookup table referenced in Peterson provides a sufficient basis for rejecting claims 15 and 16. Applicant respectfully disagrees and observes that Peterson describes a classic human-machine code converter, wherein human inputs are received via "a position sensor" or "a control device such as a volume control knob or button(s)" and "a lookup table" (the code conversion device) is used to produce the n and m values required for attenuation by the digital attenuator 200 subsystem (col. 2, lines 39-46).

In contrast, the look-up tables of the present invention may be used to establish the initial characteristics and nature of the first algorithm (claim 15), to modify the algorithm by selection of different entries in the lookup table (claim 16) and to enable the processing of variables and coefficients (claim 17). The use of lookup tables for algorithm implementation is different and distinct from the lookup tables used in the code conversion scheme of Peterson.

In view of the above remarks, Applicant requests the withdrawal and reconsideration of the claim rejections for claims 15 and 16. Applicant respectfully submits that claims 15 and 16 are in a condition for allowance, and respectfully request a Notice to that effect.

Dependent Claims 33-39 and 41-45

The Examiner recognizes that Bird provides no transform stage nor a polynomial equation implemented by a transform stage. The Examiner suggests that Peterson teaches a polynomial equation to control volume logarithmically. However, the Peterson reference "provides an approximation of a logarithmically attenuated value that is computationally simple to calculate..." (col. 2, lines 28-33). Applicant notes that, according to Peterson, "...this attenuated value may be viewed as the result of a theoretical multiplication..." (col. 4, lines 39-40). Further, the equation that appears in Peterson is not polynomial in form and is provided for the purpose of calculating approximation errors arising from the use of the Peterson invention (*See* Peterson Table I at column 6). In fact, a reading of Peterson reveals that Peterson provides no actual multiplier, only shift and add logic (Lines col. 4, 42-65).

Since Peterson provides no multiplier, then Peterson cannot anticipate an application including a polynomial. Further, because Peterson is directed to eliminating the need for certain complex mathematical calculations through the use of simple logic, Peterson teaches away from the implementation of a plurality of polynomials. Since the Peterson reference provides no basis for anticipating a polynomial equation nor an associated transform stage, Applicant respectfully requests withdrawal and reconsideration of the claim rejections for rejections to claims 33-39 and 41-45. Applicant respectfully submits that claims 33-39 and 41-45 are in a condition for allowance, and respectfully request a Notice to that effect.

Dependent Claims 62-64

Because the Bird reference provides no input or power estimation signal that is a noise signal, Examiner cites the abstract of d'Alayer in rejecting claims 62-64. However, in reviewing the substance of d'Alayer Patent, Applicant notes that d'Alayer not only fails to resolve or anticipate the problems addressed by the present application, but d'Alayer suffers from those problems.

d'Alayer describes a control process and apparatus that automatically change the output volume level of a sound reproduction source (e.g. car radio) in response to an ambient sound signal (noise). d'Alayer performs output level adjustments in response to noise levels. d'Alayer uses a low-pass filter to smooth fluctuations in a value S that represents the difference between a listener's comfort value and a current ambient sound level. As discussed above, the use of a low-pass filter creates problems that the current invention resolves. In contrast, the present application provides a variable response filter that may track and filter a signal. For example, the present invention resolves certain responsiveness problems unresolved by the d'Alayer invention. Thus, d'Alayer cannot be said to disclose or anticipate the subject matter of claims 62-64. Therefore, Applicant requests the withdrawal and reconsideration of the claim rejections for claims 62-64. Applicant respectfully submits that claims 62-64 are in a condition for allowance, and respectfully request a Notice to that effect.

Conclusion

All objections and rejections having been addressed, and in view of the foregoing, all remaining claims are believed to be in form for allowance, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, s/he is kindly requested to contact the undersigned at the telephone number listed below.

CHARGE STATEMENT: The Commissioner is hereby authorized to charge fees that may be required relative to this application, or credit any overpayment, to our Account 50-2213, Order No. 072548-0293346 (SYFX-005U).

Respectfully submitted

PILLSBURY WINTHROP LLP

By 
Anthony G. Smyth, Reg. No. 55,636

2475 Hanover Street
Palo Alto, CA 94304-1114
Tel: 650-233-4777
Fax: 650-233-4545